

CLAIMS

1. Heat-resistant crimped yarn not deteriorating under heat, which comprises heat-resistant high-functional fibers having a monofilament fineness of from 0.02 to 1 tex, and of 5 which the elongation percentage in stretch is at least 6 %, the stretch modulus of elasticity is at least 40 %, and the tenacity falls between 0.15 and 3.5 N/tex.

2. The heat-resistant crimped yarn as claimed in claim 1, wherein the heat-resistant high-functional fibers are 10 para-aramid fibers, holaromatic polyester fibers or polyparaphenylene-benzobisoxazole fibers, and of which the tenacity falls between 0.5 and 3.5 N/tex.

3. The heat-resistant crimped yarn as claimed in claim 2, wherein the para-aramid fibers are 15 polyparaphenylene-terephthalamide fibers.

4. The heat-resistant crimped yarn as claimed in claim 1, wherein the heat-resistant high-functional fibers are meta-aramid fibers, and of which the elongation percentage in stretch falls between 50 and 300 %.

20 5. The heat-resistant crimped yarn as claimed in claim 4, wherein the meta-aramid fibers are polymetaphenylene-isophthalamide fibers.

6. A bulky and stretchable fibrous product of the heat-resistant crimped yarn of any of claims 1 to 5, wherein 25 the amount of the heat-resistant crimped yarn is for at least 50 % of the fibrous part of the product.

7. The bulky and stretchable fibrous product as claimed in claim 6, which is for gloves to be used in the industrial fields of precision machines, airplanes, information systems,

automobiles, electric and electronic appliances, and in the field of surgical operations and sanitary facilities, as well as for fireman's clothes, racer's clothes, steel worker's clothes, welder's clothes, and painter's clothes.

5 8. A method for producing heat-resistant crimped yarn, which comprises twisting heat-resistant high-functional fiber filaments, heat-setting them through treatment with high-temperature high-pressure steam or high-temperature high-pressure water, and thereafter untwisting them.

10 9. The method for producing heat-resistant crimped yarn as claimed in claim 8, wherein the heat-resistant high-functional fiber filaments are twisted to a twist parameter, K represented by the following formula, of from 5,000 to 11,000, and are heat-set through treatment with high-temperature high-pressure steam or 15 high-temperature high-pressure water at a temperature falling between 130 and 250°C:

$$K = t \times D^{1/2}$$

wherein t indicates the count of twists (/m) of the filaments; and D indicates the fineness (tex) thereof.

20 10. A method for producing heat-resistant crimped yarn, which comprises twisting heat-resistant high-functional fiber filaments, heat-setting them through dry heat treatment at a temperature not higher than the decomposition point of the heat-resistant high-functional fibers, and thereafter 25 untwisting them.

11. The method for producing heat-resistant crimped yarn as claimed in claim 10, wherein the heat-resistant high-functional fiber filaments are twisted to a twist parameter, K represented by the following formula, of from 5,000 to 11,000,

then heat-set through dry heat treatment at a temperature falling between 140 and 390°C, and thereafter untwisted:

$$K = t \times D^{1/2}$$

wherein t indicates the count of twists (/m) of the filaments;

5 and D indicates the fineness (tex) thereof.

12. A method for producing heat-resistant crimped yarn, which comprises knitting heat-resistant high-functional fiber filaments into a knitted fabric, then heat-setting the knitted fabric through dry heat treatment or through treatment with 10 high-temperature high-pressure steam or high-temperature high-pressure water, and thereafter unknitting it.

13. The method for producing heat-resistant crimped yarn as claimed in claim 12, wherein the knitted fabric of heat-resistant high-functional fiber filaments is heat-set 15 through treatment with high-temperature high-pressure steam or high-temperature high-pressure water at a temperature falling between 130 and 250°C for a period of time falling between 2 and 100 minutes, and then this is unknitted.

14. The method for producing heat-resistant crimped yarn 20 as claimed in claim 12, wherein the knitted fabric of heat-resistant high-functional fiber filaments is heat-set through dry heat treatment at a temperature falling between 140 and 390°C, and then this is unknitted.